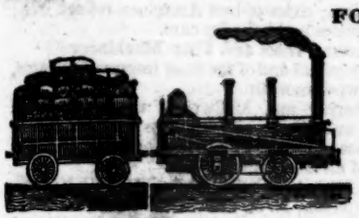
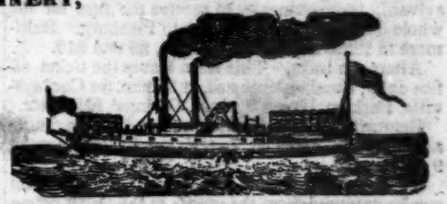
AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY, AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 14.] SATURDAY, APRIL 4, 1846. [WHOLE No. 510, VOL. XIX.

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Spring Arrangement, 1846.

On and after March 2, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 3½ p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3½ and 6 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 3 and 6½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above $50 in value, and that *personal* Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every $500 additional value.

CHAS. MINOT,
February 23, 1846. 1y *Super't.*

BOSTON AND PROVIDENCE RAILroad. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7·20 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

31 1y W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD and STAGES CONnecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., *Agents.*

Corner of Cedar and Greenwich Sts. 43 1y

NORWICH AND WORCESTER RAILRoad. On and after May 22, 1845, Trains will leave as follows, viz:—Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

☞ The morning train from Norwich, and the morning and evening trains from Worcester, connect with the Boston, Western, and Hartford and Springfield railroads.

New York Train, via Steamboat. Leaves Norwich for Worcester and Boston, every morning except Monday, upon the arrival of the boat from New York, about 2 a.m. Leaves Worcester for Norwich and New York, at 5½ p.m., daily, except Sunday.

New York Train, via Long Island Railroad,—Leaves Norwich about 3 p.m., for Worcester and Boston, daily, except Sunday. Leaves Worcester for Norwich and New York, at 7½ a.m., daily, except Sunday, and arrives in Norwich at 9½.

Freight Trains. Daily, except Sunday.

☞ Fares are less when paid for Tickets, than when paid in the cars.

EMERSON FOOTE,
32 1y Superintendent.

NEW YORK AND HARLEM RAILRoad Company.—Winter Arrangement. On and after November 3d, 1845, the cars will run as follows:

Leave City Hall for Yorkville, Harlem, Morrisiana, and Williams' Bridge,

7 30	A.M.	This train leaves 27th st.
7 30	"	Does not stop this side of Harlem.
10 30	"	Does not stop this side of Harlem.
11 30	"	
1	P.M.	Does not stop this side of Harlem.
2 30	"	
3 30	"	Does not stop this side of Harlem.
4 30	"	

Leave White Plains for City Hall—8·10, 11·10 a.m., and 1·45, 4·10 p.m.

Leave Tuckahoe for City Hall—8·20, 11·20 a.m., and 1·55, 4·20 p.m.

Leave Williams' Bridge for City Hall—8·45, 11·45 a.m. and 12·45, 2·15, 3·45, 4·45, and 5·45 p.m.

Leave Morisiana for City Hall—8, and 9·10 a.m., and 12·10, 1·10, 2·40, 4·10, 5·10, and 6·10 p.m.

The freight train will leave City Hall at 12·45 p.m. and leave White Plains at 11·10 a.m. All freight must be at the City Hall between the hours of 10·30 a.m. and 12·30 p.m. The White Plain trains will stop, after leaving the City Hall, only at the corner of Broome street and the Bowery, Vauxhall Garden and 27th street.

The City Hall and 27th street line will run every 6 minutes from 7·30 a.m. to 8 p.m.

The City Hall and 27th street night line will run every 20 minutes from 8 to 12 o'clock.

On Sundays the trains will be regulated according to the state of the weather. 1y 46

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A.M. and 4 P.M.
" Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED to $1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P.M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, Sup't.

March 25th, 1846.

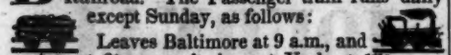
Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points $7, and 4 cents per mile for less distances. Fare through to Wheeling $11 and time about 36 hours, to Pittsburgh $10, and time about 32 hours. Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

BALTIMORE AND SUSQUEHANNA Railroad. The Passenger train runs daily except Sunday, as follows:



Leaves Baltimore at 9 a.m., and arrives at 6¼ p.m. Arrives at York at 12¼ p.m., and leaves for Columbia at 1¼ p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York $2. Wrightsville $2 50, and Columbia $2 62½. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, $9 and $10.

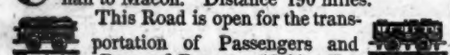
Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3½ p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following da- any passenger train.

D. C. H. BORDLEY, *Sup't.*
31 1y Ticket Office, 63 North st.

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

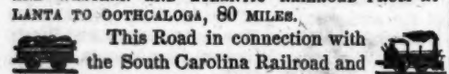


This Road is open for the transportation of Passengers and Freight. Rates of Passage, $8 00. Freight—

On weight goods generally...	50 cts. per hundred.
On measurement goods.....	13 cts. per cubic ft.
On brls. wet (except molasses and oil).....	$1 50 per barrel.
On brls. dry (except lime)...	80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery.....	40 cts. per hundred.
On hhds. and pipes of liquor, not over 120 gallons.....	$5 00 per hhd.
On molasses and oil.....	$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,
40 Gen'l. Sup't. Transportation.

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.



This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....	16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....	95 "
" Sugar, coffee, iron, hardware, etc.	65 "
" Flour, bacon, mill machinery, grindstones, etc.	33½ "
" Molasses, per hogshead $9 50; salt per bus.	20 "
" Ploughs and cornshellers, each.....	75 "

Passengers $10 50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, $7.

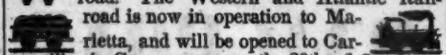
German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.
Augusta, Oct. 21 1845. *44 1y

FLAT BAR, ENGLISH ROLLED, RAILroad Iron, 2½ × ½—a large part suitable to relay. For sale by C. J. F. BINNEY,
Commission Merchant, 1 City Wharf,
11 1m Boston, Mass

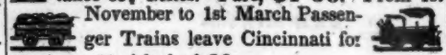
WESTERN AND ATLANTIC RAILroad is now in operation to Marietta, and will be opened to Cartersville, in Cass county, on the 20th of October—and to Coosa Depot, (formerly known as Borough's,) on the 20th of November.



The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT.
43 *Chief Engineer.*

LITTLE MIAMI RAILROAD. — DISTance 65½ Miles. Fare, $1 50. From 1st November to 1st March Passenger Trains leave Cincinnati for Xenia at 11 o'clock, A.M.



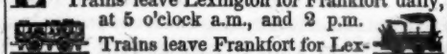
Returning, leaves Xenia at 8½ o'clock, A.M.

Freight Trains run daily, Sundays excepted.

At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT,
1y 1 Supt. and Engineer.

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.



Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare $1·25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above.
35 1y

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS,
ja45 *Reading, Pa.*

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire,
Peter Cooper,
Murdock, Leavirt & Co. } New York.
J. Triplett & Son, Richmond, Va.
J. R. Anderson, Tredegar Iron Works, Richmond, Va.
J. Patton, Jr.
Colwell & Co. } Philadelphia, Pa.
J. M. L. & W. H. Scovill, Waterbury, Con.
N. E. Screw Co.
Eagle Screw Co. } Provicence, R. I.
William Parker, Supt. Bost. and Worc. R. R.
New Jersey Malleable Iron Co., Newark, N. J.
Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 1y

DAVIS, BROOKS & CO., 30 WALL ST., have on hand for sale,

Railway Iron of different sizes—heavy and flat bars.

A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally $5,000. Also 12 Railway Passenger Cars, that have never been used, which will be sold a bargain. 8 tf

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANufacturers of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,
ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, AGENTS FOR the sale of

Codorus,
Glendon,
Spring Mill, and } Pig Iron.
Valley,

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves,
Jan. 14, 1846. [1y4] *Philadelphia, Pa.*

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1¼ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descripions.†
ja45 1y

NOTICE TO CONTRACTORS. PROposals will be received at Bridgeport, until the 20th of March next, for re-laying the Housatonic railroad with an H rail.

Specifications will be furnished at the office of the undersigned, in Bridgeport, on and after the 20th February. R. B. MASON,
Engineer.
Bridgeport, February 4, 1846. 8 5t

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON
Mar. 20tf 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

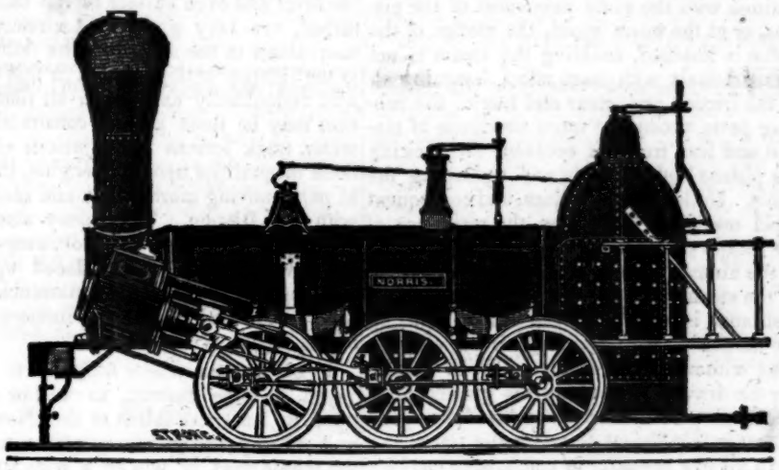
CUSHMAN'S COMPOUND IRON RAILS. etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc. —respectfully offers to dispose of Company, State Rights, etc., under the privileges of *letters patent* to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of *improving* their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

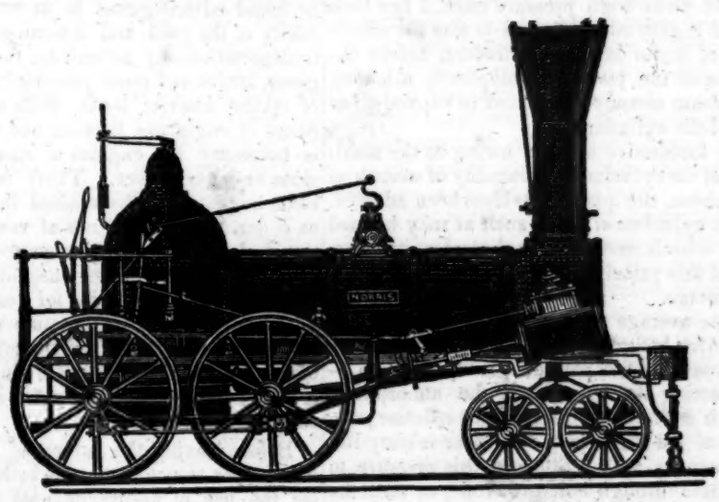
W. Mc. C. CUSHMAN, *Civil Engineer*,
Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applicaitons must be post paid.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.





MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15	inches	Diameter	of	Cylinder,	× 20	inches Stroke.
"	2,	14	"	"	"	× 24	"	"
"	3,	14½	"	"	"	× 20	"	"
"	4,	12½	"	"	"	× 20	"	"
"	5,	11½	"	"	"	× 20	"	"
"	6,	10½	"	"	"	× 18	"	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ¼ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER Flues.

Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland.
WILLIAM YOUNG,
jy451m President.

TO IRON MASTERS.—FOR SALE.—MILL SITES in the immediate neighborhood of *Bituminous Coal* and *Iron Ore*, of the first quality, at Ralston, Lyoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years the coal will not cost more than $1 to $1 25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.
W. R. CASEY, *Civil Engineer*,

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, &c.

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side o Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

CYRUS ALGER & CO., South Boston Iron Company.

Report on the Width of Track by Edwin F. Johnson, 1842.

(Continued from page 205.)

As engines are ordinarily constructed the highest speed at which the greatest load can be conveyed at the average working pressure of the steam, is about *ten* miles per hour. That is, the steam cylinders consume at that speed all the steam which the boiler is capable of generating at the given pressure.

Under a greater speed therefore the steam is expanded in the cylinders, and its pressure reduced in proportion. The power requisite to keep the train in motion being the same at a high as a low speed, or rather greater, since the resistance of the atmosphere is greater, it follows that as the speed is increased above ten miles per hour the load must be diminished in proportion. At twenty miles per hour the pressure of steam on the square inch in the cylinders is only about one half of what it is in the boiler, and at thirty miles, only one third.

If it is desired therefore, that an engine shall convey at a rate of twenty miles per hour, without increasing the pressure of steam in the boiler, the same load now conveyed at the rate of ten miles per hour, the generating power of the boiler must be *doubled*. If at thirty miles it must be *trebled*.

The boilers of locomotives are of the multiflue description, or what are termed tubular. Their capacity to generate steam is in proportion nearly to the superficial extent of heating surface, that is, of the fire-box and flues combined, and the size of the steam chamber.

To add to the dimensions of these, the diameter of the boiler or its length or both must be increased. Experience seems rather to indicate that there is a certain length beyond which the flues cannot with propriety be carried, and the enlargement of the heating surface must in such an event be effected by increasing the diameter of the boiler. This requires more space between the wheels of the engine, and a track of greater width.

A very high degree of speed, the power continuing unimpaired, it is supposed, will at times be required upon the New York and Albany railroad, particularly in summer, when a competition will to a certain extent exist between the *through* trains of the railroad and the steamers on the river. It will be very desirable to accomplish the whole distance between New York and Albany and Troy in about five hours, making the velocity from thirty to forty miles per hour. Supposing, however, that it is not an object to produce a great effect at high speed, then an advantage will result in the use of boilers having a larger heating surface, in consequence of saving in repairs of the boiler. The intensity of the heat being less, less injury will accrue to the boiler. Experience thus far in the use of locomotive steam power upon railways, shows that a very large portion of the expense of this power is made up of the cost of repairs which are confined mostly to those parts of the boiler exposed to the direct action of the heat. When it is considered, therefore, that the cost of steam power, constitutes much the largest item of the expense of locomotion upon railways, any saving in this respect is an object of great importance.

With a wide track, a larger diameter may be given to the drawing wheels of the engine. It has not been found advantageous, to give to the drawing wheels of locomotive engines a diameter very much greater than the width of the track. Upon the Great Western railway in England, which is seven feet wide, drawing wheels of ten feet diameter were not found to work as well as those of less diameter, and in this country and elsewhere on roads having a width of four feet eight and a half inches, the diameters of the drawing wheels of the engines range from four and a half, to five feet.

With the larger drawing wheels the length of the crank being given, a greater speed is attained with the same movement of the pistons, or at the same speed, the motion of the piston is lessened, enabling the steam to act comparatively with more effect, lessening also the friction and wear and tear of the rubbing parts, producing more steadiness of motion and less frequent occasion for packing the pistons and repairing and tightening the joints. Under high velocities, and consequent rapid motion of the piston, the resistance of the escape steam is very considerable, owing to the atmospheric pressure and limited size of the steam passages. The amount of this resistance is materially lessened by reducing the motion of the piston, which can only be done without impairing the speed, by enlarging the drawing wheels to the greatest practical limit permitted by the width of track, and if that is insufficient, to widen the track.

In all low pressure or condensing engines, and in many high pressure ones, it has been found highly advantageous to stop the admission of steam into the cylinders, before the stroke of the piston is completed, allowing the steam already introduced to expand so as to fill the cylinder.

In locomotive engines owing to the small size of the cylinders and rapidity of motion of the piston, this plan has seldom been adopted. With cylinders of a size such as may be used with wheels seven feet in diamater, it is supposed this principle may be adopted and with advantage.

The average pressure of steam in most locomotive boilers will not vary much perhaps from seventy-five pounds per square inch.—Deducting the pressure of the atmosphere, which is fifteen pounds, and the *effective* pressure of the steam in the cylinder is sixty lbs. per square inch. Suppose this pressure to continue through half the stroke, or until the cylinder is half filled, and then no more steam admitted, the effective pressure upon the piston for the remaining half of the stroke is reduced from sixty pounds per square inch, to twenty-two and a half pounds at the end of the stroke,* giving an average pressure for this half of full *forty* pounds. The mean effective pressure for the whole stroke is therefore *fifty* pounds. That is, a loss of only *ten pounds* per square inch, or *one-sixth* of the *effective* pressure is experienced, while one-half of the steam is saved.

By cutting off the steam nearer the beginning or end of the stroke, the amount of saving compared with the effect produced will vary. By adopting this principle, cylinders of large diameter as well as of greater length may probably be required, rendering, in addition to the increased diameter of the wheels, more lateral space or width between the tracks desirable, especially in those cases where the engines are formed with what are termed *inside connections*.

The advantages of a wider track in giving more steadiness of motion to the engine, lessening the inequalities of its action, whenever the level and even surface of the rails is disturbed, are very great. As already stated, inequalities in the surface of the rails, owing to the intense action of frost in this climate, will undoubtedly exist upon all roads whatever may be their plan of construction. A wider track lessens the injurious effects of these inequalities upon the engine, the several parts moving more freely and easily, and with less friction. The injury also which the engine causes to the track, owing to the great weight necessarily placed upon the drawing wheels is lessened, inasmuch as both the vertical and lateral or vibratory motion of the engine is diminished.

Upon a road where freight is to be conveyed in large amount, as will be the case upon at least two-thirds of the New York and Albany railroad in summer, and upon the whole road in winter, a wide track will be found advantageous in increasing the capacity of the road and lessening the cost of transportation, by permitting the use of engines, larger and more powerful and capable of taking heavier loads, with no more expense of engineers, firemen and agents, than is necessary for engines of smaller dimensions and less power. There is indeed the same advantage to be attained in this respect as is derived from the use of vessels of large size designed for the conveyance for freight, as evidenced in the increase of tonnage of our Atlantic packet ships for years past, and in the less cost of transportation in large vessels upon the rivers, as compared with the canal, which, although not owing altogether to the cause mentioned, is yet in a great measure attributable to it.

Before leaving the subject of locomotives, it is proper to notice that the boilers designed for the use of anthracite coal are usually placed vertically, and require in consequence more breadth of base, or width of track, to insure steadiness of motion, and also for the purpose of giving to the boiler greater capacity to generate steam, by increasing its diameter, and the number of its tubes or flues, and extent of heating or evaporating surface.

It is true that upon most railways, even those penetrating the coal regions, wood is still used as a fuel for generating steam; but it is well known that coal is rapidly taking the place of wood in steamboats and in sta-

* Steam at seventy-five pounds filling half the cylinder, is reduced to thirty-seven and one-half pounds when occupying the whole cylinder, deducting fifteen pounds, the atmospheic resistance, from this, leaves twenty-two and one half pounds, the effective pressure at the end of the stroke.

tionary engines, and the time may arrive when it will be used to advantage in locomotives upon railroads.

A prominent objection to the adoption of a wide track for railroads, is the additional expense. This will consist mainly in the extra width of road bed, and greater length of the cross ties and transverse sleepers.

The addition which it may be necessary to make to the weight of the axles of the carriages, and the amount of ground required for the road are too unimportant to be noticed.

If the track is six feet wide, a width of road bed of fifteen to sixteen feet will be sufficient. This is but very little, if any, more than is usually adopted for a narrow track. The greatest difference in this respect will arise whenever it becomes necessary to construct a second track. In such a case, the width or space between the track should bear some proportion to the width of track or breadth of the carriages. The capacity of a single track for transportation is so great that considerable time must elapse before a second track will be required, and when it is, the business of the road will be so much increased, that the extra cost of the road bed will not probably be a consideration of importance.

The ground upon the line of the New York and Albany railroad is generally so favorable, that an addition to the width of road bed, equal to the difference between a track 4 71-100ths feet and six feet wide will not probably much exceed *three hundred* dollars per mile. For the extra cost of cross ties or sleepers, *seventy* dollars per mile, will be the maximum for a single track. This gives four cents additional for each sleeper, supposing them to be placed three feet apart from centre to centre, which is the usual distance. It is safe to say that the whole extra cost of constructing the road with a track six feet wide, will not exceed *one and one-half per cent. on the total cost of the road when completed.* Inconsiderable as this amount is, it is not improbable that much of it may be saved, by increasing the inclination of the grade line at points, where the excavations and embankments are heavy, since the use of the more powerful engines on the wide track may render any slight variations in the position of the grade line less objectionable. A similar remark may also be made in respect to the curves, since it may be found advantageous perhaps in some instances, in order to lengthen the radius of curvature, to give to the grade line a little greater inclination, to avoid increasing the cost of construction.

In all locomotive engines the strength of the boilers is such as to permit the use of a pressure of steam higher than the average rate intended to be used. This is of advantage in overcoming acclivities in the grades of limited extent of the character of those above described. In surmounting such acclivities the supply of cold water to the boilers is withheld, which at once causes an increase of temperature and pressure in the boiler and of course an increase of power in the engine. The suspension of the supply of water can only be for a limited time, since it must not be allowed to fall too low in the boiler. For larger and more capacious boilers, the supply of water can be suspended for a longer time, thus giving to the engine an ability to overcome acclivities in the grades of greater extent.

As it respects the weight and the cost of the rails, both will, if anything, be lessened, by using a wider track, since with cars of the usual breadth a less portion of the weight of the load would be thrown upon any one rail in consequence of inequalities in their surface. As it is probable however that the cars will be enlarged, no saving is contemplated in this respect. The rails are subjected to the greatest strain under the weight of the drawing wheels of the engine. It has been suggested that a wider track is rather better adapted to the use of engines with eight drawing wheels. If this opinion is correct, the rails even with heavier engines will not need to be made as strong for the wide track as for the narrow one.

Another prominent objection which will doubtless be urged against a wide track, is the increased resistance on the curved portions of the road. An examination into the character of this resistance, shows that it is owing to a part or all of the following causes.

1st. The obliquity of the direction of the moving power, or the angle which the lines of traction, drawn from the engine to each carriage attached thereto upon the curve makes with the tangent to the curve, or with the direction of the motion of the carriage at the given point.

2d. The pressure, and consequent friction of the flanges of the wheels against the outer rail arising from the centrifugal force.

3d. The pressure, and consequent friction of the flanges of the wheels against the outer rail, arising from the straight forward tendency of each car, resulting from the parallelism of the axles.

In the eight wheel cars of the two pair of wheels attached to the same frame, being brought nearer together, this resistance is less than in the four wheel cars.

4. The resistance arising from each pair of wheels being firmly connected to the same axle, and of course revolving with it, causing a sliding upon the rails, when the wheels are cylindrical, equal to the difference in length of the inner and outer rails of the curve.

Of these four resistances, the three first cause a greater obstruction to the motion probably in the aggregate, than the last, and as they are dependent wholly upon the radius of curvature and velocity of motion, they are not affected by any variation in the width of track.

The sliding of the wheels upon the curved portion of most railways is to a certain degree obviated by giving a conical form to the rims of the wheels. Upon the wider track if the angle of the cone is preserved, a little more play must be given to the flanges of the wheels upon the curves.

If the conical wheels are not used, the increased sliding upon the supposition that the track is widened from four 71-100th feet to six feet, is equal to two 7-10th inches for each ten degrees, which the direction of the motion is changed through the intervention of the curve, and is but about one-fourth more than the total sliding upon the narrower track, and will not probably exceed in its effect upon the motion *one-sixth or one-seventh* of the whole resistance occasioned by the curves.

From some experiments made on the Baltimore and Ohio railroad it was concluded that a change in direction equal to three hundred and sixty degrees, or four right angles, produced a resistance equivalent in its effects upon the cost of transportation equal to twenty-three one hundredth parts of a mile of distance. With a track *six* feet wide this would be increased to about *twenty-seven one hundredths* of a mile, or for the whole amount of curvature upon the New York and Albany road, the increased resistance from a wider track, would be equal to an addition to the length of the road of about one-fourth, or at most one-third of a mile; *less than one fifth of one per cent. of the whole distance.*

It does not appear therefore, that in the case of the New York and Albany railroad, any material loss of power will be occasioned by giving to the rail track a width of six feet.

With respect to the increased resistance upon curves, which as shown above is not an important item, it should be remembered, that improvements are being constantly made in the construction of carriages and engines, and that the resistance from this cause will not be increased but may be *lessened* by such improvements.

As it regards the greater liability of the axles to break, from their greater length, on a wider track, I have supposed their size and weight would be increased so as to give them the same relative strength in resisting the effect of torsion upon the curves, being the only strain of importance to which they are subjected. This increase of diameter does not lessen the leverage so as to add to the power required to overcome the friction at the journals, since in all railway cars, the bearing points or journals are situated *outside* of the wheels.

It may be urged as a further objection to a wide track, that the road-bed being wider will be more difficult to drain. The addition of fifteen inches to the width of track cannot, it is believed, cause any material difference or inconvenience in this respect. On the contrary the greater width will afford more space for a longitudinal drain between the rails, and lessen probably the number of lateral conduits into the side ditches.

It will of course be an object to form as much of the road as possible in embankment consistent with the expense, and the slopes will be best preserved from abrasion by having the longitudinal drain between the rails as ample as possible.

As to the greater difficulty of removing the snow from a wide track, it is believed that no inconvenience of consequence will be experienced. Very heavy falls of snow occur but seldom in winter, and upon a road doing a large business, where the trains are passing and re-passing frequently, it cannot accumu-

late to any great depth upon the road so as to cause much delay in its removal. The experience thus far upon the New York and Erie railroad, and upon the Russian road from St. Petersburgh, to Zarsko Selo, does not indicate any particular inconvenience in this respect from a track six feet wide.

The most serious objection which can probably be made to a wide track is the delay and expense attending a transfer of freight and passengers at those points where business connections are formed with other roads. As it regards passengers this is not of much importance. The instances in which it may be desirable to run the cars of the New York and Albany company upon other roads will be exceedingly rare, and when they occur, a substitute can be adopted of transferring the car bodies which contain the freight by a very simple and expeditious process, from the running parts of the cars of one road to those of the other.

The line of the New York and Albany road is favorably situated for avoiding any difficulties in this respect. The road is of such length, and the inconvenience to the company will be so great of permitting their cars to pass beyond its limits as not to make it an object to exchange cars or engines with other companies.

The cities of Troy and Albany being prominent points for the distribution and concentration of the trade with the west, the north, and the east, makes it altogether probable that a breaking of bulk, or transfer must take place at those cities, and hence, that as it regards the main business of the road, no occasion will exist for the mutual interchange of cars with other companies unless with a view of accommodating lateral or branch roads.

Of these latter there are only two in operation with which such a connection will be desirable. One is a connection with the upper part of the Housatonic railroad, with a view of bringing in the business of the western parts of Connecticut and Massachusetts, and the other with the New York and Erie railroad by a branch extending to Tarrytown, opposite Piermont, the present termination of that road upon the Hudson.

The latter road has a track *six* feet wide. So far therefore, as it regards this connection a track of that width is the best. The Housatonic railroad has a track 4 7-100 feet wide, but being laid in a cheap manner with a light iron plate, on a timber rail, it is not improbable that when the New York and Albany road is completed up to the point where a connection would be formed, that a new and more substantial track will be needed which can then be laid, if found expedient, of the same width with the New York and Albany road.

In the event also of an arrangement with the New York and Harlem company, to use their road as a part of the line of the New York and Albany road, a new track or superstructure will be required, which can be laid of the proper width. The track now in use being unsafe and unsuitable for the purposes intended.

The proposed branch connecting with the eastern roads at New Haven will, it is reasonable to suppose, be constructed of the same width of track with the New York and Albany road.

The superstructure of the road now in operation from New Haven to Hartford is of the same general character with the Housatonic road, but more substantial, and the road from Hartford to Springfield to connect with the Western road in Massachusetts is not yet commenced. Whether however, the wide track shall be extended further east or north than New Haven or not, is a question which will not affect the propriety of adopting a width south or west of that point, corresponding with the standard established on the New York and Albany road.

With respect to the northern division of the road, it has been proposed to locate that portion so that some twelve to fifteen miles of the Albany and West Stockbridge roads can be used in common by both companies, and the latter road has been graded for a double track for the distance mentioned with a view in part undoubtedly to this object. Should such an arrangement be consummated, it does not follow that the rail tracks of both roads should be of the same width. On the contrary, an advantage may result from having them of different widths to prevent all possibility of collision or interference of the cars and engines of the two companies, the one with the other.

The necessity which requires that two great and rival companies should occupy the same road-bed, must be urgent; and the evils of juxtaposition, should not be aggravated by any arrangement which will permit the cars and engines of the one to pass upon the track of the other.

It would appear therefore, that so far as it regards connections with other roads, no very weighty reasons can be urged for adhering to the standard of the narrow width of track, and that no serious impediments exist, to prevent the company availing itself of the advantages of a wider track.

It is most certainly of the utmost importance to the success of the New York and Albany railroad, that it should be constructed in the most perfect manner, and that the highest speed of which railroads are capable should be attained upon it.

Upon its superiority in this respect, its value to the stockholders mainly depends. It should, therefore, have ample breadth of base with commodious and well furnished cars, with drawing wheels to the engines of the largest possible diameter, and capacious boilers with fire-boxes large enough to generate, and steam chambers to contain the great amount of steam requisite to supply the cylinders.

That the railway will to a certain extent come in competition with the steamers on the river in the conveyance of passengers there can be no doubt. In this competition its greatest recommendation will be superiority of speed, and comfort to the passengers; and allowing even that such superiority is not required to secure to it an amount of business sufficient to sustain it, yet there is no doubt by possessing such superiority, the revenue will be increased in a large ratio compared with the expense of attaining it. Less of the business will be diverted to the eastern seaports, and both the public and the stockholders will be greatly benefitted.

In the use of impelling wheels of large diameter, and capacious boilers, the same principles will apply to railways as to steamboats and to those who have observed the improvements in speed upon the Hudson river within the last fifteen years, it is needless to state that it is attributable quite as much to those causes as to improvements made in the parts of the engine or in the models of the boats.

The question of the best width of track to be adopted is probably of more importance than any other connected with the plan of construction of the road.

Any error which may be committed in this respect will be irremidiable except at great expense, and will be attended with a loss and inconvenience to the company and the public, so great as to render any change which might hereafter be found desirable, virtually impracticable.

The subject is one deserving of a thorough investigation, and I do not hesitate to express the opinion that if the investigation is carefully and impartially made, it will result in a conviction of the superiority of a width of 6 feet for the track or superstructure of the New York and Albany railroad.

EDWIN F. JOHNSON,
Chief Engineer, N. Y. & A. R. R. Co.
August, 1842.

We copy from the Journal des Chemins de Fer, of Paris, the following notice of works already begun on the railroad between Rouen and Havre:

Bridge, (wood,) 8 arches, 45 yards each.
Tunnel, 1050 yards long.
Viaduct, 4 arches.
Tunnel, 80 yards long.
" 1500 " "
" 1184 " "
Viaduct, 5 arches.
" 8 "
Tunnel, 2200 yards long.
" 20 " "
Viaduct, 580 " "
Tunnel, 100 " "
" 160 " "
Viaduct at Mirville.
2 do at Harfleur, 5 arches each.

New York and Boston Railroad.—The Greenfield Mass., Gazette says,

"The road, if completed, will probably be one of the most profitable in the United States. The other roads have all been constructed with reference to steam navigation on the sound, and for obvious reasons must be pretty generally abandoned whenever this goes into operation.

"It is a splendid project, and considering the directness of the route, deviating very little from a straight line, the nature of the country it will pass through, its easy grade, the great commercial importance of the two cities, its superiority to every other land route in regard to time, shortening it more than one-half—it can hardly fail of realizing the most sanguine expectations that have been formed respecting it. The passenger business on this route must be immense. It presents great attractions to capitalists."

ENGLISH RAILROAD SHARE-LIST.

NAME OF RAILWAY.	Miles opened.	Total sums, in pounds, authorized to be raised by shares.	Total sums, in pounds, authorized to be raised by loan or mortgage.	Total sums, in pounds, expended at dates of latest balance sheets.	Cost of working, in pounds for six months as stated in latest balance sheets.	Total earnings, in pounds, for six months as stated in latest balance sheets.	Dividend at last meeting. Per share. £	s.	d	Per cent. per annum. £	s.	d	Paid on share.	Value of share.
Arboath and Forfar	15	102,000	35,000	138,870	.....	.....	0	12	6	2	10	0	25	20
Birmingham and Gloucester	55	1,187,500	407,336	1,500,806	39,261	53,203	1	5	0	2	10	0	100	100
Brandling Junction	23	161,700	365,470	481,452	.....	.....	.....			4	10	0	50	54
Bristol and Gloucester	37½	400,000	211,000	657,825	.....	.....	.....			nihil.			30	59
Chester and Birkenhead	14½	750,000	143,170	518,989	5,856	13,148	0	10	0	2	0	0	50	60
Dublin and Drogheda	31	450,000	150,000	582,254	.....	.....	.....			nihil.			60	115
Dublin and Kingston	6	200,000	152,200	349,736	.....	.....	9	0	0	9	0	0	100	251
Dundee and Arbroath	16½	100,000	49,445	153,416	2,989	6,993	1	5	0	5	0	0	25	36
Durham and Sunderland	18½	169,350	124,055	270,392	9,889	17,702	.....			nihil.			50	25
East County and North and East	86½	4,443,200	1,341,155	3,931,905	47,385	118,726	1	6	6	.....			45	57
Edinburg and Glasgow	46	1,125,000	375,000	1,649,523	29,429	55,866	1	5	0	5	0	0	50	78
Glasgow, Paisley and Ayr	51	937,500	.....	1,071,258	12,446	36,736	1	5	0	5	0	0	50	72
Glasgow, Paisley and Greenock	22½	650,000	216,666	797.643	11,830	23,447	0	5	0	2	0	0	25	21
Grand Junction	104	2,478,712	.....	2,503,671	84,309	195,080	5	0	0	10	0	0	100	239
Great North of England	45	969,000	581,017	1,307,487	12,201	36,189	3	0	0	6	0	0	100	230
Great Western	221½	4,650,000	3,679,343	7,445,689	143,279	440,046	4	0	0	8	0	0	80	215
Hartlepool	15½	438,000	155,540	719,205	.....	.....	.....			8	0	0	100	...
Leicester and Swannington	16½	140,000	.....	140,000	2,207	6,317	1	5	0	5	0	0	50	...
Liverpool and Manchester	32	1,209,000	497,750	1,785,000	64,885	141,252	5	0	0	10	0	0	100	214
Llanelly	27	200,000	44,000	221,624	.....	.....	1	0	0	2	0	0	87	...
London and Birmingham	202½	6,874,976	1,928,845	6,614,005	96,413	456,997	5	0	0	10	0	0	100	245
London and Blackwall	3½	804,000	266,000	1,768,851	15,978	23,870	0	3	0	1	10	0	16	10
London and Brighton	56	1,935,000	705,000	2,637,753	30,490	130,156	1	10	0	6	0	0	50	77
London and Croyden	8½	550,000	229,000	761,885	7,583	10,545	0	8	0	4	0	0	14	23
London and Greenwich	3½	759,383	233,300	1,040,930	15,193	28,933	.....			nihil.			13	11
London and South Western	92½	2,222,100	630,100	2,604,405	89,439	190,631	2	0	0	10	0	0	41	82
Manchester and Birmingham	31	2,100,000	690,586	1,923,699	15,397	58,162	1	0	0	5	0	0	40	62
Manchester and Bolton	10	778,100	197,730	773,743	8,585	21,140	2	2	0	4	10	0	93	169
Manchester and Leeds and Hull	87	2,937,500	1,943,932	3,921,593	46,653	156,761	.....			8l. & 10l.			60	170
Midland railway	179½	5,158,900	1,719,630	6,279,838	75,227	276,129	3	0	0	6	0	0	100	192
Newcastle and Carlisle	61	878,240	188,563	1,135,069	26,499	46,745	5	0	0	5	0	0	100	113
Newcastle and Darlington	23	500,000	.....	405,728	.....	.....	1	0	0	8	0	0	21	56
Newcastle and North Shields	7	150,000	153,876	309,629	8,943	18,466	.....			6	9	0	50	69
North Union	39	739,201	308,306	1,028,593	24,788	37,794	2	10	0	6	5	0	100	176
Paris and Orleans	82	1,600,000	400,000	1,978,415	.....	.....	0	16	0	8	0	0	20	45
Paris and Rouen	84	1,440,000	.....	.....	31,247	91,171	.....			8	0	0	20	40
Preston and Wyre	19	830,000	179,852	355,161	4,191	7,066	.....			4	0	0	50	32
Sheffield and Manchester	19	1,150,000	311.759	951,455	11,895	14,876	.....			nihil.			87	135
South Eastern	88	2,996,000	1,530,277	3,464,172	69,288	139,042	.....			3	1	4	33	48
Taff Vale	30	465,000	195,000	595,089	9,115	22,692	1	17	7	3	15	0	100	104
Ulster	25	519,150	20,000	348,626	5,401	13,856	0	15	0	5	1	8	32	52
Yarmouth and Norwich	20½	187,500	62,500	230,036	5,186	10,008	1	0	0	5	0	0	20	29
York and N. Mid. and Leeds and Selby	28	1,052,500	167,500	1,107,146	31,349	75,474	2	10	0	10	0	0	50	115

NEW AND PROPOSED RAILWAYS.	Share Capital.
Aberdeen	1,600,000
Barnsley Junction	200,000
Belfast and Ballymena	385,000
Blackburn and Accrington	400,000
Birk. and Ches. Junction	1,000,000
Bolt., Wigan and Liverpool	800,000
Caledonian	1,800,000
Cambridge and Lincoln	1,250,000
Chatham and Portsmouth	5,000,000
Chester and Wrexham	120,000
Churnet valley	1,800,000
Direct Northern to York	4,000,000
Dublin and Belfast	950,000
Dundee and Perth	250,000
Edinburg and Northern	800,000
Ely and Bedford	270,000
Glosgow, Dum. & Carlisle	1,300,000
Gt. South and West Ext.	1,200,000
Gt. Grimsby and Sheffield	600,000
Harwich and E. coun. Jun.	160,000
Huddersfield & M. rl. & cl.	600,000
Kendal and Windermere	125,000
Leeds and Dewsbury	400,000
Leeds and Thirsk	800,000
Liv. Ormskirk and Preston	600,000
London and Portsmouth	1,750,000
London and York	5,000,000
Londonderry & Enniskillen	500,000
Lynn and Ely	200,000
Manchester, Bury and Ross	300,000
Manchester and Buxton	250,000
Mullingar and Athlone	.....
Newcastle and Berwick	700,000
Richmond & W. End Junc.	.....
Scottish Central	700,000
Sheffield and Lincolnshire	650,000
Shrewsbury and Gd. Junc.	400,000
Shrew. Wolv. Dudly & B.	900,000
Trent Valley	900,000
West London Extension	64,000
West Yorkshire	1,000,000
Whitehaven and Maryport	100,000
FRENCH RAILWAYS.	
Boulogne and Amiens	1,500,000
Central of France	1,280,000
Lyons and Avignon	2,400,000
Orleans, Tours & Bordeaux	2,000,000
Paris and Lyons	2,500,000
Paris and Orleans	1,600,000
Paris and Rouen	1,400,000

ENGLISH STEAM AND MISCELLANEOUS COMPANIES.

NAME OF COMPANY.	Num. of shares.	Am't. of share.	Amount paid.	Div. p.c. per ann.	Last price.	Present price.
Steam and Miscellaneous.						
Anglo Mexican Mint	10,000	10	10	.....	15½	15½
Anti Dry Rot	10,000	.....	18½	.....	2	.....
Australian Trust Company	5,700	100	35	.....	34½	.....
General hteam Navigation	20,000	15	14	10	27½	27
Gt Western Steam Pa	.....	.....	100	.....	25	.....
Metropolitan Wood Pav.	15,000	10	6	5	6½	.....
Patent Elastic Pav	10,000	1	1	5	1½	.....
Peninsular and Oriental	11,493	50	50	7	64½	65
Ditto	3,200	50	40	7	.....	.....
Polytechnic Institution	.....	.....	.....	6	.....	.....
Reversionary Int. Soc.	5,387	100	100	4½	104	104
R. Mail Steam Packet	15,000	100	60	.....	36½	37
South Western Steam	4,000	25	5	.....	.....	.....
Ship Owners' Towing	3,000	10	7½	10	15	.....
Thames Tunnel	4,000	50	50	.....	.....	.....
University College	1,500	100	100	.....	.....	.....
Canals.						
Ashby de la Zouch	1,432	113	av.	4	70	70
Barnsley	720	100	100	14	180	180
Birmingham, 1-16 share	3,000	118½	79	10	150	160
Do. and LiverpoolJunction	4,000	160	100	.....	13½	13½
Coventry	500	100	100	20	365	365
Cromford	460	do.	do.	24	250	250
Derby	600	do.	do.	9	105	105
Erewash	231	do.	do.	32	440	440
Forth and Clyde	1,297	400½	40½	4	440	440
Grand Junction	11,600	100	100	7	162	161½
Grand Surrey	1,500	do.	do.	.....	20	.....
Gloucester and Rerkley	5,000	do.	do.	.....	8	8
Grantham	749	150	150	8	185	185
Lancaster	11,699	47½	47½	3	40	40
Leeds and Liverpool	2,897	100	100	34	640	640
Leicester	545		140	9	139	139

NAME OF COMPANY.	Num. of shares.	Am't. of share.	Amount paid.	Div. p.c. per ann.	Last price.	Present price.
Loughborough	70	142½	142½	70	1140	
Monmouthseire	2,409	100	100	10	160	160
Melton Mowbray	250	100	100	10	117	117
Mersey and Irwell	500	100	100	10		
Macclesfield	3,000	100	100	2½	15	15
Neath	247	100	100	17	365	365
Oxford	1,786	100	100	30	505	
Regents or Loncon	21,418	33½	33½	2½	25	25
Shropshire	500	125	125	6	120	120
Somerset coal	800	150	150	7½	123	123
Stafford and Worcester	700	140	140	25	480	480
Shrewsbury	500	125	125	12	230	230
Stourbridge	300	145	145	14	360	360
Stroudwater	200	150	150	19		
Swansea	533	100	100	15	240	240
Severn & Why & Rail Av.	3,762	26½	26½	5½	30	30
Trent and Mersey	2,600	50	50	65	495	
Thames and Medway	8,149	19½	19½	.....	10	10
Warwick and Birmingham	,000	100	100	10½	167	
Warwick and Napton	980	100	100	8½	122	
Water Works.						
Birmingham	4,800	25	25	3½	28	28
East London	4,433	100	100	8	223	225
Grand Junction	5,500	av.	41 2-3	7½	88	90
New River L. B. Ann	1,500			2½		
Manchester and Salford	6,486	av.	30	8½	57	57
Vauxhall, lt. S. London	1,000		100	5	55	55
West Middlesex	8,294	av.	63½	6½	126	127
Docks.						
Commercial Dock	1,065	100	100	3	80	
East and West India		sto.		5½	137	
London	3,238,310	sto.		4½	114½	115
St. Katharine	1,352,752	sto.		5	116	171
Southampton	7,000	50	50			

London and Southwestern Railway.

A railway between the metropolis and Southampton was first projected as early as 1825, but nothing was accomplished. The present scheme was projected in 1832, and it received the sanction of the legislature in 1834. To alter the works and raise more capital another statute was obtained in 1837.

The works were begun early in 1835, under Mr. Giles, as engineer; but their progress being unsatisfactory, that gentleman resigned, and was succeeded, in 1837, by Mr. Locke, the engineer of the Grand Junction. From that time the works advanced rapidly, and on the 21st of May, 1838, the line was opened as far as Woking, and throughout on the 11th of May, 1840. The Guilford branch was opened in May, 1845.

The traffic was estimated to produce £347,000 per annum, including £23,333 for fish to come from Torbay, but which has yet to come. Within three months after the opening the traffic in passengers realized the estimate of Mr. Chaplain, the present chairman, viz: £125,000. The receipts for 1845 have been upwards of £354,000, so that in less than six years the estimated traffic has been fully realized.

The works on the line were estimated to cost £894,874, with the addition of 11 1-2 per cent. for contingencies. The capital to be raised was about £2,000,000. The expenditure, exclusive of the Gosport branch, exceeds that sum, and including it, at present amounts to £2,620,000. The land alone, including compensation, etc., cost £300,000—more than one-third of the original capital.

The engineering characteristics of this line, are strongly marked. Without large commercial termini, without the extensions it was designed to possess, yet by virtue of economical construction and management, and the intrinsic power of railway accommodation to generate traffic, it has been rendered a profitable and valuable line. Although in remuneration, and therefore commercially, a line of the first class, yet in engineering peculiarities it belongs to what is generally called the second class, that is, it has long and steep gradients; and although it encounters great physical difficulties, it does not present any of those gigantic bridges, viaducts, and great efforts of design and masonry, which delight the engineer more than they profit the shareholder.

The engineering characteristics of the line are long and steep gradients and enormous earth works. In gadients, it has a single inclined plane of 1 in 250, extending frow Litchfield tunnel, 54 miles from London, down to Bishopstoke, a distance of 17 miles. Litchfield is a summit 392 feet above the level of the termini, at Nine Elms and at Southampton, both almost on the level of Trinity high water mark; and as this summit has to be gained from the London side within a length of 54 miles, and on the other within 23, it is plain there is much heavy work to be done both ways. Of the earth works, a sufficient notion will be gained from the statement before the parliamentary committee by the engineer who originally projected the line, that the aggregate earth work amounts to 16 millions of cubic yards—a mass of material sufficient to form a pyramid having for its base 150,000 square yards, and for its height 1,000 feet. Distributed along the whole line, it gives about 200,000 cubic yards per mile. The steep gradients are chiefly caused by the extensive high ridge of country which runs east and west through Hampshire, near the middle of the line, and which it is not possible to avoid. The brick and stone work on the line is inconsiderable.

The geology of the line presents but two varieties of strata. It begins at London, and ends both at Portsmouth and at Southampton, with the tertiary formations, passing first through the London clay as far as Walton, then plastic clay and sands from Walton to Basingstoke—then over about 25 miles of chalk between Basingstoke and Bishopstoke, seven miles beyond Winchester, when it again reaches the London clay. The Guilford terminus just touches the upper green sand.

The distances on this line are not very obviously or efficiently denoted. On all the metropolitan lines but this, the miles and the quarters of the mile are marked: on the Birmingham and Brighton they are marked on both sides of the line. Here, the miles only are marked on one, viz., the south side, and not conspicuously. But if this point of management needs amendment, we may especially commend the excellence of the carriages.—We had a testimonial from no less a person than a cabinet minister, that the railway carriages most easy and quiet to ride in, were those of the Southwestern. The cabinet, on its way to her majesty at the isle of Wight, were able to have a conference, so little noise was there in them, with their wooden wheels and good padding!

Railway Property.—The gradual development of railway property is best shown by the increase in its returns, and the year 1845 has been marked by extraordinary success in that respect. Taking the present lines as 50 in number, and only 1,800 miles in length, their weekly receipts averaged during the summer months about £80,000 for passengers, nearly £30,000 for goods, and above £60,000 for "goods and passengers" combined (some of the companies keeping their accounts so imperfectly as to defy the statistician, but this sum being on "goods" lines rather than "passenger lines," the greater part may be assumed to be for goods;) these make a total weekly receipt of above £170,000, and a weekly increase of £30,000 over the corresponding week of 1844. In the winter months the passenger receipts are less, but the weekly receipts exhibit a large increase over 1844; thus, in December last, our week's receipts were, for passengers, £58,400; for goods, £30,000; and for passengers and goods, £30,000, making a total weekly receipt of about £118,000, and an increase over the corresponding week of last year of above £18,000. Taking then for 1,800 of railway, £130,000 as a mean total receipt per week, we have a total yearly receipt of about £6,750,000 for passengers and goods, and taking only £20,000 as a mean weekly increase over 1844, we have a yearly increase of above £1,000,000. As to the goods, taking as a mean weekly receipt £30,000, and only a moiety of the other £60,000 (amalgamated for "passengers and goods,") together making as a mean weekly receipt for goods £60,000 at least, the total yearly receipt for goods would be about £3,000,000 sterling, at an average rate of 1d. per mile per ton.—When the 3,600 miles already sanctioned, and not less than 500 miles to be sanctioned in the next session, are completed, with the increase consequent on increased trade, who can doubt but that this species of property will fast supersede other investments, and that the subject will, if it does not now, interest every one?

Suspension Bridge over the Monongahela at Pittsburg.

We have more than once referred to this structure which was completed in February last, and promised a description of it when completed, which we shall soon give, accompanied with two views of it.

The length between the abutments is 1500 feet, divided into eight spans, averaging 188 feet.—Each span is sustained by two cables composed of 750 strans of wire. The ultimate strength of the two cables is calculated at 860 tons.

Gradients upon Railroads--Difference of Opinion.

We find the following statement in Mr. John B. Jervis' letter, published in the Journal of Commerce on the 21st of March, in relation to the different gradients on the Hudson river line and the *interior*, or Harlem, line to Albany, viz:

"The same power that would transport 100 tons on the Harlem line would carry 153 tons or 53 per cent. more on the Hudson line."

This is somewhat different from the opinion expressed by Mr. Edwin F. Johnson in his statement submitted to the legislature of this state in 1843, and published in this journal on the 25th of September last. Mr. Johnson says:

"The river line is also represented to have a maximum grade or inclination of 13 feet less per mile. Assuming this statement to be correct, it does not by any means follow that any very material advantage is derived therefrom to the river line, either in the average velocity of movement, or in the cost of transportation.

"Both routes have their termini upon the *same level.* If, therefore, there is more ascent upon one line, it must also have an equal surplus of descent, so that the aid afforded by gravity in the latter case will be precisely equal to the resistance in the former.

"For the purpose of illustration let it be supposed that the rate of ascent on the two lines for a given distance, to be equal to the maximum or both, inclination 30 feet per mile on the one, and 17 feet per mile on the other. If with a given power, a given load is conveyed up the latter at the rate assumed of 26 miles per hour, the same power will convey the same load up the former at the rate of 23 miles per hour nearly, (see New York assembly documents, No. 133, p. 11, 1839) making a difference in the speed on the ascent of three miles per hour. If these grades occupy half of the whole distance (they in fact occupy only one-sixth) and the journey between the two extremes is performed in 6 hours, the train which is on the lowest grade will commence its descent about 9 miles only in advance of the other, or 20 minutes sooner in time. To make up for this loss of time, on the remaining half of the distance, the train on the 30 feet grade has the benefit in its descent of the greater force of gravity on that slope, compared with the slope of 17 feet per mile, and hence the whole distance will be accomplished with the same expenditure of power, in the same, or very nearly the same time.

"If the rate or degree of inclination of the grade line was so great in any part as to render it impossible from considerations of safety to derive the full benefit of the aid afforded by gravity on the descending portion, the result would be different, and a disadvantage might ensue; but such is not the case, to a degree to enhance materially the expense where the maximum inclination does not exceed the limit of 30 feet per mile, and in the case of the interior route the average is very much below that amount."

Here are the expressed opinions of two eminent engineers, *differing widely* on a subject of vast importance to this community. Both, it must be conceded, cannot be accurate—and we feel called upon to offer the gentlemen an opportunity to sustain their respective positions in the Railroad Journal, for the benefit of the cause, and we hope to hear from them soon.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

PRINCIPAL CONTENTS.

Report on width of track (continued).....212
Items.....214
London and Southampton railway.....216
Gradients upon railroads—difference of opinion.216
The value of railroads.....218
Little Miami railroad.....218
Engineers report, do.....219

AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N.Y.

Saturday, April 14, 1846.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in *eleven*, Petersburg in *thirteen and a half hours*, and Charleston, S. C., in *two days* from Baltimore.

Fare from Baltimore to Charleston.....$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the *Southern Ticket Office*, adjoining the *Washington Railroad Office*, Pratt street, Baltimore, to

STOCTON & FALLS, Agents.

Troy and Greenbush Railroad.

We give in this number the spring arrangement of this road. We shall soon, we hope, be able to give a statement of its past winters work; and to draw some useful lessons from the plan adopted for and the results attained by its management.

TROY AND GREENBUSH RAILROAD.

Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at	6½	A.M.	Leave Albany at	7	A.M.
" "	7½	"	" "	8	"
" "	8½	"	" "	9	"
" "	9½	"	" "	10	"
" "	10½	"	" "	11	"
" "	11½	"	" "	12	M.
" "	1	P.M.	" "	1½	P.M.
" "	2	"	" "	2½	"
" "	3	"	" "	3½	"
" "	4	"	" "	4½	"
" "	5	"	" "	5½	"
" "	5½	"	" "	6	"
" "	6½	"	" "	7	"

☞ The 6½ a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

☞ Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT,
Superintendent.

Troy, April 1st, 1846. 14 1y

Relative Cost of Working Railroads.

In our remarks accompanying the communication of "Mercator," published in the Journal of 21st March, we requested, from some one familiar with the management of the Massachusetts railroads, an explanation of the difference in the cost of working them, as set forth in the table. In reply to that request we have received the following very acceptable communication, from a gentleman who understands the whole matter as well, probably, as any other in the country. We agree fully with him, that most of the reports made by railroad companies are exceedingly "meagre of working facts"; and what is almost as much to be regretted, by those who seek information from them, there is very little *uniformity* in the manner of making them out. We are gratified, however, to learn that an effort is to be made, in Massachusetts, during the present session of the legislature, to insure a more detailed and uniform report hereafter; and it is to be hoped that those having the matter in hand will prepare a form which will be full and explicit, yet easy of comprehension. There can, we think, be no doubt of the constant depreciation, from the moment of completion, of *all* railroads and machinery, notwithstanding the ordinary repairs, which vary according to circumstances; nor that there should be an annual charge upon the earnings of the road to meet this depreciation, which ought always to appear in the report; but the amount of this charge can only be ascertained by the experience of a series of years on many roads. We shall, however, be able to understand the matter better in a few years, if the different companies will give a full statement of their expenses in each department. We should like to hear from others, who can speak from long experience, on this subject, as much good will result from it.

For the American Railroad Journal.

Cost of Working Massachusetts Railroads.

In the last number of the Journal you have expressed some surprise at the great difference in the cost per mile of working the Massachusetts railroads, as shown in 'Mercator's' table. If 'Mercator' had in view to show a comparative cost of *working* the railroads, he should have selected those elements in the annual expenditures, which constitute *working* expenditures. I will endeavor to point out why his table does not present correct data for determining a cost per mile, which will afford any criterion to judge of the comparative economy of working the various roads. I admit that his table contains results valuable for forming correct opinions in relation to the net profits for 1845, but nothing more; neither could any other person give the statement you have inferred from Mercator's table, (cost per mile of *working* the roads, but which he himself designates as "expense per mile run,") without a full knowledge of all the peculiar circumstances connected with each road.

It is to be regretted very much that the annual returns to the legislature are so meagre of working facts, but the law makes it imperative on the railroad companies to make their returns in the present form. Some two or three gentlemen connected with railroad companies are, as I am informed, engaged in preparing a form of report which shall give the working expenses in great detail, designing to present it to the present legislature for consideration.

To recur to "Mercator's" table. In the first place I remark generally, that some of the railroad companies leave out the booking, loading and unloading of their freight, agreeing to receive from the lessee, a stipulated sum per ton for use of cars, stations, road and haulage. Such companies do not therefore return to the legislature any account of expenditures for booking, loading and unloading freight, because they have no such expenditure, the allowance which is made the lessee for these services being in fact a deduction from their gross freight receipts. This fact is alone sufficient to cause a great discrepancy in the cost of working per mile, especially in cases where the freight business is large.

There are also expenses which are at a maximum or minimum, as the road has been in operation more or less years. Repairs of track, bridges, fences, etc., are among these, as also are cars and engines. In order to a just comparison of roads, in regard to these items, it would be manifestly unjust to select any one year, unless the roads commenced operations at the same time—on the contrary, a term of years, during which these items of expenditure had passed through their serviceable use, and been renewed, would, as roads stand in the matter of age, be the only fair comparative test. In fixing a term of years to form the basis of this comparison, we may consider iron rails as ever durable, and assume any large item as the standard, say cross ties.

In pointing out the further specific reasons for the "expense per mile run" being so variable, I shall select a few only of the roads, and those which seem to present the highest cost of working.

The Boston and Worcester railroad is stated at 99 cents per mile. It is a well known fact that this company charges, in its annual expenditures, very large amounts for *depreciation*, which, however much ridiculed by some of its neighbors, is as surely at work as the engines which run over the road every day, and will, one day or another, find its way in some shape into a charge for operating all roads. Depreciation then is an item in the expenditures of working the Boston and Worcester railroad, which is not found in those of other roads, and constitutes a great item of difference in the cost of working per mile. During the last year this company added to its stock of engines a number of heavy and expensive machines, which swelled its cost of working for that year, and constitutes another item of difference between it and other companies, in that matter for the year in question; while in the current year, demands for new machinery may impose large expenditures on roads, which in 1845 range low in the scale of cost of working.

Again, on page 26, annual reports to the legislature, we find that this company expended $25,000 in 1845, for renewal of track, which is an extraordinary expense, not incurred by any other railroad in Massachusetts in that year.

Making a just allowance for these extraordinary items of expenditure, it will be found that the Boston and Worcester railroad was worked in 1845, at a cost not much above the minimum, which sustains the general opinion entertained by railroad engineers in Massachusetts, that the road is worked economically.

The Boston and Providence railroad is stated at 87 cents per mile.

The report of this company to the legislature classes among its expenditures the following items, which constitute no part of the expense of working the road, viz:

Ferry at Providence, etc.....	$8,468 60
Rent paid for portion of the road in Rhode Island, which is in fact a *dividend* paid the Rhode Island proprietors.....	6,787 86
Working Stoughton branch railroad by contract.....	4,719 88
	$19,976 34

This sum of $19,976 34 is in reality not expended in working the road, and is an extraordinary expenditure, to which railroad companies generally are not liable. This company also added very considerably to its stock of engines and cars, thus enhancing very materially its cost of working per mile. Its depreciation account forms a distinct item, and is not included among the current expenditures.

The Boston and Lowell railroad is stated at $1 02 per mile.

The extraordinary expenses of this road are,

For renewing track	$20,179 38
For new engines and cars	21,747 00
	$41,926 38

These items are included in the current expenditures, and go very far towards the difference between it and other roads in the cost of working per mile.

An examination of the reports and expenditures of other companies, which seem to range high in the cost of working, would give similar satisfactory results, as have been obtained in relation to the three companies particularly named, and it would be found, that if the expenses of each company were made up by the same formula, *for a term of years*, excluding the item of *wood*, which varies in its cost, owing to local circumstances, from $2 75 to $6 per cord, that that item would be the only variable one of any moment. L.

The Value of Railroads.

The following remarks, of "An Observer," on the value of railroads, which we take from the National Intelligencer, are so true and so highly deserving the attention of the people of this country, that we cannot do the cause better service than by giving them a prominent place in the Journal, and requesting those papers with whom we exchange to re-publish the article. We agree with the writer, that the late express from Halifax has served to show the *value* of railroads to this country, even it no other good resulted from it; and on that account, if no other, we hope those who planed and paid the expenses of it will not be forgotten by those who read newspapers. We should like also to know that the government, and especially the post office department, appreciate them, and are willing to make fair returns for their services. We are sure the managers of railroads generally only require a fair compensation for services rendered, and the department ought to be willing to pay its full value, according to the increased rates of speed, instead of attempting to compel the service of *millions* of capital at the same rate that they pay for thousands in other sections of the country.

Railroads.

The value of railroads is made manifest by the recent example of extraordinary dispatch between Halifax, in Nova Scotia, and the city of Washington. The papers by the Hibernia, up to the 4th of March from Liverpool, and to the 3d from London, were delivered in Washington at half-past 8 o'clock on the 20th of March. The distance from Halifax to Washington, near one thousand one hundred miles, was travelled in about sixty-four hours, including all detentions and delays, notwithstanding the disadvantages of a bad road, travelled by horses, for more than one hundred miles in Nova Scotia; a high wind during a voyage at sea by steamer of two hundred and fifty miles; and another high wind for near one hundred miles on the sound.—With these obstacles, the rate of travel, for the entire distance, including stoppages—one hour at Boston, one hour and a half at New York and others—was seventeen miles an hour. If no other valuable end shall have been attained by this express, it serves to show what can be accomplished in this way in our country. While so much with railroads have been achieved in the northeast direction from Washington, it is to be regretted that the same has not been done to the southwest of it.—However important the news from Mexico and Texas, time must be lost in the sloughs of Alabama, to say nothing of other detentions to which the express might be exposed. As the deficient links to a continuous railroad between the Potomac and the Mississippi are not likely to be supplied as a national work, is it not surprising that the states and cities interested in it do not unite with our capitalists in completing a work of such incalculable importance? Were the wanting link supplied between the Carolina capitals, Raleigh and Columbia, less than two hundred miles in a direct and practicable route, and about twenty miles further by Fayetteville, there would soon be a continuous line of railroads from the Potomac, both to the Chattahoochie and the Tennessee rivers, to the western boundary of Georgia.

Were the travel from Alabama and Tennessee bronght to Raleigh, to be transported over the state road to Virginia, it cannot be doubted it would be a capital financial measure for the state of North Carolina. Would not its citizens be benefitted in various ways by a railroad from Columbia to Raleigh?—When one looks at the adaptation of the intervening country, on many accounts, for a railroad, who can doubt it would yield a hand some remuneration for the enterprize? How could planters more profitably employ their negroes than as laborers on the line? Why will not old Rip Van Winkle wake up? Cannot South Carolina shake the poppies from her brow? Let the Carolinas but imitate the example of other states, and the movements now making in Georgia, Alabama and Mississippi, and in the course of a year or two the work will be done.

Some thirty or forty years ago, one more prescient than that age, was considered deranged for believing the time would come when the travel between Philadelphia and Boston would be achieved in forty-eight hours. It is now performed in about twelve hours.—When the great plan of a direct and continuous railroad between New York and Boston shall be put in operation, it is confidently believed the whole distance between those cities, two hundred and nine miles, may be travelled by ordinary trains in six hours. That being the case, why should more than nine hours be required between Philadelphia and Boston? As New York is not thirty miles nearer to Boston than New York to Washington, why should not the day come when one may travel of a summer's day, between sunrise and sunset, from Washington to Boston? We shall not be considered insane were we to venture the prediction that the day will come when one day only will be required for the travel between Washington and Boston! But we must begin by accelerating the travel between Washington and New York, which at this time ought not to require more than ten consecutive hours.

If England beats us, as she does greatly, by the rapidity of her travel, it seems we beat her by the extent of our railroads. At the close of 1843, from the returns compiled by order of parliament, it appeared that there were in America 3,688 miles of railroad to 2,069 1-2 in Great Britain; and that the mileage on our railroads nearly equalled those of Great Britain, France and Belgium. But ours cost £4,800 per mile, on an average, to £31,048 in Great Britain.

We suppose in no part of the world can a railroad be constructed at a cheaper rate than between Raleigh, North Carolina, and Columbia, South Carolina. Let this work be done, and it will soon lead to a completion of the metropolitan route to Baton Rouge, in Louisiana, or to Mobile, in Alabama, whence there might be an easy and rapid communication to New Orleans. An Observer.

[*National Intelligencer.*

Little Miami Railroad--Third Ann. Report.

We are indebted to W. H. Clement, Esq., superintendent and engineer of this road, for a copy—yes, for *two* copies—of the third annual report of the company, showing the cost and condition of the work up to 1st of December, 1845, for which he will please accept our thanks, and an apology for the seeming neglect of the *first* copy which came to hand, or rather to the office, and was laid carefully aside for use, but by some means or other did not come under our observation, until after we had requested another copy to be sent to us.

On referring to the copy before us, we find distinct reports from Jeremiah Morrow, Esq., the president of the company, Jacob Strader, the treasurer, and W. H. Clement, the engineer and superintendent. From the first we make a few extracts in relation to matters not referred to in the report of the engineer, which we give entire, together with so much of the treasurer's report as will show from whence the capital has been derived, the present financial condition of the company, and its future prospects.

The length of the road now in use from Cincinnati to Xenia is 65¼ miles—the distance to be completed from Xenia to Springfield, where it will connect with the Mad river and lake Erie road, is 18¾ miles—or its entire length will be 84 miles—and the entire distance to the lake at Sandusky, 214 miles.

The president says:

"In our last annual report it was stated that with the aid of a loan of $100,000 contracted for with the city of Cincinnati, the board of directors had been enabled to take measures for extending the road to the town of Xenia. And that contracts for the work and material on that part of the line had been entered into. It is proper here to remark, that these contracts were in general fulfilled in proper season, and that the road was regularly opened for business to that point on the 19th of August last, and has continued in successful operation ever since. It was also then stated, that the cost of extending the road to Xenia, would exhaust all the available funds of the company. And that no further progress could be made in the extension of the road with safety to the credit of the company, unless additional means should be provided, and that to an amount sufficient to warrant its construction to some point promising remuneration from the business of transportation and travel. Two modes were then suggested for obtaining the necessary funds to justify a further extension or finish of the road. The first was to constitute an active agency for procuring subscriptions of additional stock in amount sufficient for the purpose, and in failure of realizing a competent amount by that mode, then to endeavor to contract for a loan on the credit of the company, to the amount required.

"The board of directors were early impressed with the opinion that the interests of the company would be promoted by carrying on the work in continuation up to the point of

termination as fixed by the charter. It was determined that exertions be made to procure the means if practicable, could they be obtained on reasonable terms, to effect that object. A preference was given to a subscription in stock to that of contracting for a loan. The board, accordingly, engaged an agent to visit the Atlantic cities, and authorize him to procure stock subscription for the company, not exceeding $200,000 in amount. After suitable exertions, the agent failed in the object of his mission; he had, however, ascertained and communicated the fact to the directors, that a loan on the credit of the company for the specified amount, could be negotiated with the capitalists in the city of Boston. The state of Ohio being a stockholder in the company to a large amount, it was deemed necessary that authority should be granted by the siate legislature to enable the compnny legally to contract for a loan on tha terms proposed. On application to that body, an act was passed at their last session, authorizing the company to borrow an amount not exceeding $200,000, and at a rate of interest not exceeding seven per cent. per annum. Under the authority of that act, the company contracted for a loan with capitalists of the city of Boston, for the amount authorized, and at the maximum rate of interest specified by the act. The proceeds of the loan are now available in the prosecution of the work. The loan was taken for 10 years, with the privilege on the part of the lenders to convert it into stock of the company at any time within five years from the date of the contract, by giving notice of their intention so to do; and also the privilege on the part of the company of paying off the loan at any time after five years, if not vested in stock of the company before that time."

After alluding to some difficulty in relation to the final location of the road, he observes that,

"The line of road being established, it was soon prepared for being put under contract. The letting was made on the 1st day of July last; public notice having been previously given to invite bids on the work. The grading on all the sections, except that next adjoining the town of Springfield, was let for contract at that time. That one section was reserved from contract for some time, in order that the location should be so made as to admit of a convenient junction with the Mad river and lake Erie railroad. That object being accomplished, that section was then let. The whole line is now under contract and good progress made in forming the grade. Contracts have also been made for the lumber to form a road structure, and for iron to lay the track. The contracts have been made on terms considered reasonable, and at rates just to the parties concerned. According to contracts the embankments are to be completed by the 1st of January, 1846; the graduation and masonry by the 1st of March, and the furnishing of lumber by the 1st of April."

An arrangement, it appears, has been made between the two companies for their mutual accommodation at Springfield, by the erection of a passenger depot over the roads at their connection, and a separate building on each side of the road, one for each company. This appears to be admirably arranged, and they are fortunate if they have only secured *ground enough*, which has not always been the case, even when it could have been obtained at reasonable rates, and we would recommend their securing *more*, rather than less, than is necessary, at all their stations, as it will never be worth less than now, after the road shall have been completed.

In relation to the completion of the road, we select the following extract, viz:

"The Little Miami railroad will be finished unless the happening of some unforseen event prevents, against the 1st of July next, and we are informed by the directors and principal engineer on the Mad river and lake Erie railroad, that their road will be completed against the 1st of October next, so that in autumn the line will be opened for business between the Ohio river and the lakes. The Miami canal with its extension, is a state work, constructed at the common expense of the citizens of the state, and however beneficial in promoting the general interest, many districts of our country from remote local situation, derive no direct benefit from the improvement; the inhabitants of the lower part of the Little Miami valley, the upper part of the Scioto, and the Sandusky valley, never did, nor could, from their remote situation, derive any direct advantage from this state improvement.

"The product on the whole line of these railroads must depend on them for transportation. The canal will not compete with the business of the railroads, only on an inconsiderable portion of the line. The whole business of transportation for an extended region of a fertile country, cannot fail to secure to them a large and profitable employment, and that without interfering, but in a small degree with the local business of the state works.

"From the business done on the finished portion of the railroads, calculation can be made of the revenue which will be produced when the line shall be extended through.

"It is only after this line shall have been completed to the lakes, and a sufficient amount of machinery procured to avoid the delays and disappointments we have hitherto been subjected to, that the stockholders can hope to realize a full return for their patience and liberality. That such a return will be made in dividends beyond the expectations of most of those engaged in forwarding the enterprize, no one familiar with the country through which the road passes, can doubt. There is not, strictly speaking, an acre of waste land on the whole line—no spot which cannot be made useful in some way, and by far the greater portion unequalled in point of fertility. The number of mills dependent on the road to a greater or less extent, for the transportation of their manufactures, averages one to the mile—and it is the opinion of one well qualified to judge, that the business of Springfield and its neighborhood, will yield a larger revenue to the road than is now realized from the road south of Xenia.

"This line will form a direct communication between the two great streams of travel on the Ohio and the lakes; offering to the travelling public a choice of routes to the sea board by a cheap and speedy conveyance, and to the merchant and business man a medium of transportation open at all seasons of the year. The city of Cincinnati will also have the benefit of a daily intercourse with the extensive and fertile district of country bordering the lakes, and her commercial citizens be enabled to interchange commodities with a section of country shut out for one-third of the year from any and every market by ice and snow.

"The time required to reach Boston from Cincinnati, during the season of navigation on the lakes, and after the opening of this line, will be less than three days, allowing for all reasonable contingencies."

Well may it be said that when this work is completed, and well supplied with machinery, "a return will be made in dividends beyond the expectations of most of those engaged in forwarding the enterprize." No one familiar with the operations and influences of railroads upon a region of country *having resources to be developed*, and possessing a correct idea of the country through which this road passes, can doubt for one moment that it will become one of the most productive works in the west, when it shall have been, *as it must soon be*, relaid with heavy H or bridge rail. True economy will require this to be done at the earliest possible period. It will *also* require that a *full supply* of engines and cars be provided in season to accommodate *all* the business that may offer—as no effort should be omitted to *encourage* and foster the traffic of the region. Never turn it away, and never, if possible to prevent it, *delay it* by a deficiency of machinery. The *people* expect railroads to work with *railroad speed*.

Engineer and Superintendent's Report. Little Miami Railroad.

We next give the report of the engineer and superintendent. We like its straightforward business-like tone and manner. We should select its author for a suitable man to build a railroad in a comparatively new country, where capital is not as plenty as good timber. He does not appear to be disheartened by limited resources, nor discouraged by delays—but pushes, on resolved to accomplish the object in view.

We have, during the past seven years, witnessed the efforts of many a bold heart, similarly situated; and have never more ardently desired the ability to induce the capitalists of New York to loosen their purse strings than when applied to for our opinion as to the probability of their obtaining subscriptions to the stock—or loans upon the pledge of their road—not wholly on account of those directly engaged in the work, however, but because the people of N. York have also a direct interest in their construction; and it has always been with corresponding regret that we have been compelled to say that such applications are usually made with much fairer prospects of success in Boston; and such appears to have been the case with this company; and Boston will not be forgotten by those who have been aided in this work, as others were also in the case of the Mad river railroad last year. Indeed, but for Boston sagacity, it is probable that these two roads—by which an easy communication will be opened between lake Erie and the Ohio river—would have been compelled to struggle on for years unfinished; whereas now they will both be opened for use this year—and other roads will also be constructed as a matter of course.

To the President and Directors of the Little Miami Railroad.

GENTLEMEN:—It gives me pleasure in presenting the annual statement of the business, condition, and progress of the road, to be able to say, that no important interruption to the passage of trains has taken place, and that no accident, resulting in serious injury to passengers or machinery, has occured.

It will be seen, on reference to the accompanying statement of receipts and expenditures, on account of transportation, that while the gross amount collected, has fully met your expectations, the net proceeds have fallen short of the sum named in the last annual report. This falling off is due entirely to the large amount expended for the renewal of superstructure.

Notwithstanding the business of the road shows a great comparative increase, a variety of causes have contributed to keep away a

considerable amount, which would naturally seek this channel to a market. Among the most important, may be mentioned, the want of motive power, during the first half, and the requisite number of cars, throughout the business season of the whole year. The first of these evils, has been remedied for the time being, by the arrival of the three locomotives ordered in the spring, and the second will be removed, as fast as circumstances will permit. A steady increase of business has been realized, in both passengers and freight, from nearly every point on the line, and no reasonable doubt can be entertained, that the business of the coming year, will yield a gross revenue of more than $100,000, without taking into the estimate the extension of the road to Springfield. Heretofore, the produce of the district of country through which the road passes, has been transported principally in wagons; changing the mode of conveyance, requires new business arrangements, and the sale of horses, wagons, etc., etc.—Until a disposition can be made of this surplus, many persons will be prevented from using the road as a medium of transportation. A better acquaintance with the manner of doing business, and the many advantages it presents over the ordinary mode, will eventually transfer the whole business to the line.

The superstructure of the road above Foster's crossings is generally in good repair.—On that portion next to the city of Cincinnati, the same difficulties which have been met with from the opening of the road, still exist, and I know of no effectual remedy, short of increasing the width of the excavations to 28 feet, and relaying the track in a bed of gravel or broken stone.

The experience of the past year furnishes conclusive evidence, that the cost of keeping anything like a smooth surface, in clay excavations, will amount in two years, to a sum sufficient to ballast the road bed, to say nothing of the annoyance to passengers, and injury to machinery caused by an uneven surface. The rails and ties have been relaid from near the sixth mile post to the town of Milford, a distance of eight miles, with the exception of a half mile near Plainsville, on which work was suspended, in consequence of cold weather.

The lumber necessary to complete it, is mostly on the ground, and a week or ten days of fair weather, will suffice to close it up.

The rails and ties will require renewal from the office to the 6th mile, as early next spring as is practicable. I would respectfully urge upon the board the propriety of renewing this part of the road with a heavy T or U rail. The character of the present business, and the certainty, that when the line shall be completed, freight will form an important portion of the revenue of the road, renders this step eventually a matter of necessity. All experience has shown, that a heavy freight business cannot be done as economically or satisfactorily, upon as light a plate rail as that adopted upon a part of this line. The transition from the $\frac{3}{4}$ to the $\frac{7}{8}$ bar, laid upon the upper part of the road, can be detected instantly by a casual observer, and the difference will be still more marked in the inch bar to be laid between Xenia and Springfield.

The rails and ties will also require renewing from Milford to Foster's crossings, early next year. To secure the speedy and economical execution of this work, contracts should be made for all the lumber required this winter, and the delivery completed as far as possible. An inadequate supply of timber has been a fruitful source of expense and delay the past season, and will be again, unless measures are taken to secure a sufficient supply in time. The cost of relaying has been somewhat higher than was anticipated, arising from the necessity of keeping the track connected for the passage of trains, and the decayed condition of the old ties.

Hereafter, the cost of repairs of superstructure, will probably reach an average of $300 per mile per annum, with the present speed and additional number of trains required by the increasing business of the road. Should you conclude to adopt a higher rate of speed, after the road is opened to Springfield, the average cost of repairs will be increased in proportion.

The bridges over streams are generally in good repair. It is proposed to give additional strength to those built on Long's plan, by connecting the upper and lower chords with iron rods secured to bolster blocks, and to protect them from decay, by ceiling and capping the truss frames.

As a measure of precaution, it would be advisable to keep all the materials required for a bridge of the longest span on the line, framed and under roof, ready for any emergency. By adopting this course, no serious interruption to the business of the road could occur.

The embankment over the deep valley, above Milford, is so far completed as to permit the laying of the track. The timber is now being delivered and the work will be prosecuted under any circumstances, as fast as possible. But two bridges upon dry land are now remaining upon the line, one over the island at the Little Miami river, and the other in the town of Fulton; these are believed to be safe for some time to come, but should be replaced by embankments as soon as the resources of the company will permit.

A considerable sum has been expended in repairs of locomotives, and a further expenditure will be required to replace the frame and fire box of the engine "Governor Morrow," the coming year, in addition to the ordinary repairs in this department.

The motive power has been strengthened by the receipt of three engines;—one an eight wheeled passenger engine, from the shop of Messrs. Rogers, Ketchum and Grosvenor, and two six wheeled connected freight engines, from the manufactory of Messrs. Baldwin and Whitney. After a fair trial of the freight engines, we have found them fully equal to the performance of the duty guaranteed by the builders. In October last, permission was obtained from the city council to use locomotive engines in Front st., limiting the speed to four miles per hour. Since that time the freight trains have been brought in without the aid of horse power; a result long desired; effecting a great saving in time and expense to the company, and working no injury it is believed, to the residents on the street.

The grades at present, are to abrupt for the lighter class of engines on the road to overcome usefully; but when these shall be reduced, or the business justify the employment of an engine of suitable size, exclusively for this purpose, the horse power may be dispensed with entirely.

The machinery on the road is, generally, in good repair.

The motive power consists of

One 10 ton engine, with a single pair of driving wheels.

Two 13 ton eight wheeled passenger engines.

Two 15 ton six wheeled connected freight engines; making in all five.

In addition, two 13 ton eight wheeled passenger engines are ordered; one of them is completed, and on its way, via New Orleans, and the other is being built by Mr. Anthony Harkness of this city.

There will be required for the next year's basiness, in addition to the number above stated, one eight wheeled passenger engine, and one six wheeled connected freight engine.

NUMBER OF CARS.

4 eight wheeled passenger cars.
1 four " " "
1 eight " baggage "
2 four " " "
15 eight " platform "
13 four " " "
14 " " house "
7 lever hand cars for transporting men and tools.
2 gravel cars.

In addition there are now in the shop, and nearly completed, one eight wheeled passenger car, one eight wheeled baggage car, two eight wheeled and four four wheeled house cars.

There will be reqnired for the next year's business, in addition to the number above stated, the following cars.—

23 eight wheeled house cars.
10 four " " "
10 eight " platform "
10 four " " "
4 eight " passenger "
2 " " baggage "

I would respectfully urge on the board, the importance of ordering cars in time to enable the contractor to procure the requisite quantity and quality of timber. Some loss, and a great deal of delay may be thus saved.

Number of miles run by passenger, freight and gravel trains, during the year, 70,976.

Average cost per mile, including current expenses for all purposes, 43·04 cents.

Number of passengers carried for the year, 44,764.

Receipts and Expenditures, on Account of Transportation for the year ending December 1st., 1845.

For carrying passengers	$25,394 82
" " freight	20,932 76
Total	$46,327 58

Expenditures:

For renewing rails and ties on seven and half miles of track, for three miles of rails, and the ordinary repairs on remainder of superstructure	$10,160	90
For repairs of bridges	159	04
" " road bed, ordinary and extraordinary, including widening excavations, and deepening ditches.	4,960	93
" widening cars	765	68
" " locomotives	2,052	63
" " machinery	407	56
" oil and tallow	525	79
" fuel	3,075	92
" transportation expenditure, including wages of men, rent, etc., etc.	9,832	35
	$31,340	89
Less, say 110,000 b. m. feet timber on hand at $10	1,000	.0
Total expenditure	$30,340	89

Recapitulation:

Total receipts on acc'nt of transportation.	46,327	58
" expenditure "	30,840	89
" over current expenses	$15,486	69

A statement of the amount received each month in the year, for carrying passengers and freight:—

		Passengers.	Freight.
December,	1844	1,023 04	1,593 22
January,	1845	1,142 53	1,571 33
February,	"	970 21	1,225 19
March,	"	1,050 38	1,433 65
April,	"	1,263 52	1,267 27
May,	"	1,543 28	1,151 26
June,	"	1,590 32	915 44
July,	"	1,936 22	1,751 92
August,	"	2,843 02	1,505 31
September,	"	4,239 83	2,367 67
October,	"	4,063 32	2,551 85
November,	"	3,819 23	3,568 65
Totals		$25,394 82	$20,932 76

A statement of the principal articles of produce transported on the road, for the year ending December 1st.

Apples, clover seed, and eggs	barrels	553
Beef, pork, and lard	"	1,971
Molasses, oil, vinegar, and cider	"	658
Whiskey	"	19,582
Wheat, and buckwheat flower	"	25,147
Lime	"	1,054
Salt	"	3,031
Empty barrels and kegs		2,367
Mer'dize, sundries, and furnature	pounds	1,788,427
Iron and nails	"	166,673
Pork, and bulk meat	"	624,557
Paper and rags	"	241,553
Butter	"	26,705
Castings	"	181,985
Hay	"	118,612
Lumber, M. feet, B. M.	"	289,763
Hoop poles and staves	M	276,919
Shingles	"	740,550
Malt	sacks	2,822
Barley and oats	bushels	5,093
Corn, wheat, and rye	"	103,811
Potatoes and turnips	"	2,774
Coal	"	41,028
Live hogs	No.	4,096

In addition, there has been transported for the company during the year, 900 tons of iron, and 600,000 feet B. M. lumber.

It is indispensable, that the ground necessary for an engine house, shop for repairing and building cars, etc., should be procured at an early day. The buildings now used for these purposes, are unsafe and inconvenient in every respect, and another year's business cannot be done without some improvement in that particular, except at great expense and delay.

Some arrangement should also be made to procure ground and erect a suitable building for the reception of freight and passengers at Milford. At present, they are alike delivered and received in the open air.

Complaints have been made of the slow rate of speed adopted for the passenger trains but more particularly of the accommodation train. The speed of the morning train from Cincinnati is over 14 miles per hour, including stoppages, which is believed to be up to the average over flat bar roads in the United State. The accommodation train doing the local business, consumes more time in making stoppages, and does not average over 10 miles per hour. These objections can be readily obviated when the through business will justify a special train, as there is no difficulty in the way of attaining a higher rate of speed, but the increased expense.

EXTENSION OF THE ROAD FROM XENIA TO SPRINGFIELD.

This work was let on the 1st of July, and the contractors had generally commenced operations by the 1st of August. The grading, masonry, and timber are in a state of forwardness, and with the usual proportion of fair weather this winter and coming spring, the road can be opened for travel to Springfield in the month of July, 1846. Care has been taken to secure better workmanship and materials in every department. The road bed will also be ballasted throughout with clean gravel one foot deep by ten feet wide. The bridges will be built of sufficient strength, to sustain 22 ton engines, and the superstructure be much superior in strength, in consequence of the increased weight of iron, and a better arrangement of timber.

The following estimate of the cost of the road between Xenia and Springfield, is believed to be correct.

Superstructure, including iron and bridges.	$98,624 30
For graduation and masonry	72,387 30
Depot at Springfield, and water stations.	5,800 00
Right of way, and lands, "say"	6,000 00
Engineering and contingencies	5,000 00
Total	$187,811 60

The distance from the office in Cincinnati, to the court house in Xenia is 65¼ miles.

The total length of the road when completed to Springfield will be 84 miles.

Respectfully submitted,
W. H. CLEMENT,
Superintendent and Engineer.

We also give most of the abstract of the books as given by the treasurer.

Abstract of the condition of the Books of the Little Miami Railroad Company.—December 1, 1845.

	Dr.
For construction	$623,549 07
" Depots and real estate	37,961 42
" Machinery and animal power	68,824 94
" Expenditures on account of transportation	31,940 89
" Interest and expense	85,418 03
" Subscriptions	34,580 48
" Bills receivable	6,905 92
" Cash in hands of treasurer	43,136 25
" Cash in hands of agents and due from sundry individuals	7,050 92
	$939,367 92
	Cr.
By capital stock	$549,245 25
" Loan from city of Cincinnati	100,000 00
" Bills payable	32,466 94
" Transportation receipts	46,327 58
" Wharfage account	197 50
" Proceeds of eastern loan	204,390 00
" Unclaimed dividends	229 58
" Surplus, December 1, 1844	880 99
" Amount due sundry individuals	5,630 08
	$939,367 92

The amount expended up to the 1st instant, for road, depots, cars, engines and appurtenances, is as follows:

Graduation and masonry	$241,380	81
Bridges	22,015	79
Superstructure	295,030	93
Interest and expense account	85,418	03
Engineering	29,369	08
Machinery	67,453	94
Real estate	2,967	29
Lands for right of way	35,762	46
Animal power	1,371	00
Depot account	15,178	52
Cincinnati depot	19,815	61
	$815,753	46

The receipts on account of subscription to the capital stock, and loans, have been,

From the city of Cincinnati, in bonds.	$300,000	00
" " " in loan	100,000	00
" state of Ohio in interest	6,900	00
" " " bonds	115,000	00
" county of Greene, in cash	26,145	34
" " " in bonds	23,000	00
" " " interest	854	66
" " Clark, in bonds	25,000	00
" Individual subscriptions	104,019	52
" Proceeds of eastern loan	204,390	00
Total	$805,309	52

The present indebtedness of the company is,

In bills payable	$32,466 94
" Open account in the books	5,630 08
" Loan from the city of Cincinnati, payable in the year 1880	100,000 00
" Loan from eastern capitalists, payable in the year 1855	200,000 00
Total	$338,097 02

Immediate and prospective means for the payment of debt and interest for the ensuing year:

Net receipts for transportation, estimated at	$45,000 00
Bills receivable	6,905 92
Amount in treasurer's hands	43,136 25
Individual subscription in Clark county, "say"	6,000 00
Due from sundry individuals, and cash in the hands of agents	7,050 92
Due from Charles Anthony, Esq., former treasurer	654 09
Total	$108,747 18

Estimate of amount required to complete the road to Springfield, and to procure the requisite furniture.

For graduation, masonry, superstructure, depots, lands for right of way, etc., between Xenia and Springfield, as per estimate of engineer	$187,811 60
Locomotive cars, etc.	78,000 00
Total	$265,811 60
Less amount already paid	35,118 00
	$230,693 00
Less 20 per cent. for which a credit can be claimed by the directors, if desirable	53,200 00
Total	$177,493 60

The expenditures may be reduced considerably in machinery, as the estimate is a full one, and intended to cover all possible wants.

I would recommend to the board to offer to the present stockholders stock sufficient to cover the deficiency, and in failure of that to resort to a loan.

The net revenue of the road for the past year has been expended in the purchase of machinery, and construction.

The amount standing to the credit of the road will be as below:

Surplus, December 1st, 1844.....	$890 99
Net receipts for the year ending 1st inst.	15,486 69
Total.....	$16,367 68

The above surplus will admit of a dividend of 3½ per cent., which I would recommend the board to make; payable in stock. JACOB STRADER, *Treasurer.*

By referring to the map of the United States, it will be seen that this road occupies a very favorable position, and must become a great thoroughfare for travel. It will be the first point, at least, for some time to come, at which travellers, assending the Ohio, can leave the *river* steamers for *land* steamers—and reach the lake steamers in about 12 hours—thus having a desirable change, and make much more rapid progress. It therefore becomes very important that this road should be of the very best description; and we are gratified to learn, as we do, by a letter of 21st March, that the directors have resolved to commence relaying the road where it needs it, with a heavy rail. The writes says,

"Our work is just growing into importance. Five years since but few besides some ten or twelve clear sighted and enterprizing individuals had faith in railroads anywhere—much less in this, which has only a *mill to the mile*, and an inexhaustible soil to support its business. But the 'times have changed, and men with them.' The directors have ordered the superstructure to be renewed with an H rail as fast as it requires renewal at all, and we calculate that 12 locomotives will not more than do our business *before* we connect with the Mad river road.—Then—but we will leave the future to speak for itself. Our road is all laid with the plate rail, but, with the exception of the part first built, is much superior to the same kind of roads in the east, as we use an inch bar and white oak timbers. You will see from the report that our business has been heretofore comparatively unimportant, but this year will give us a gross receipt of over 100,000 dollars, and next year nearer three times that sum."

Extension of Railways.—The extension of railways during the last three years from about 1,500 to 2,000 miles, has had the effect of increasing the average receipts per mile from about £2,800 to 3,200, and the total returns from about £2,600,000 to just £4,000,000.

Produce of Iron in Great Britain.—Of the quantity of iron, South Wales produces 279½ thousand tons, Staffordshire 219½, Shropshire 81¼, Scotland 37¾, Yorkshire 33, Derbyshire 22½, and North Wales 25. The quantity has increased 100,000 tons per annum.

OFFICE OF THE NEW YORK AND ERIE RAILROAD CO., No. 50 Wall street.—NEW YORK, March 19th, 1846.—Notice is hereby given, that proposals will be received until the 10th day of April next, for the Grading, Masonry and Bridging required to complete the Newburg Branch of the New York and Erie Railroad, extending from Chester depot in Orange county, to the village of Newburgh, a distance of about 18 miles.

The maps and profiles, estimates and specifications, are in the office of the company, in the village of Newburgh, where all necessary information will be given, either by the subscriber or by Messrs. SILAS SEYMOUR and L. J. STANDIFF, Civil Engineers.

The work will be divided into sections, averaging a mile in length, and proposals will be received either at Newburgh or in the city of New York, for grading the whole or any part.

By order of the President and Directors.

12 3t T. S. BROWN, Chief Engineer.

RAILROAD IRON.—The subscriber having taken contrats for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip.

New York, January 23d, 1846. 1y 10

DAVIS, BROOKS & Co., 30 WALL ST. Have now on hand and for sale,

200 tons 2½ x ½ inch Flat punched Rails, Bars 18 feet each.

100 tons Heavy Edge Rails, 90 tons per mile.

30 tons 2½ x ½ inch Flat Rails.

ALSO—A STEAM PILE DRIVER, built by "Dunham & Co." which has never been used, and cost originally $5000 s20

RAILROAD IRON. 500 TONS HEAVY T Rails, of an approved parttern, expected to arrive here during March, or early in April.

Apply to DAVIS, BROOKS & CO.

March 5, tf 30 Wall street.

LARD OIL FOR MACHINERY, ETC.—Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures, and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing C. J. F. BINNEY,

Agent for the Manufacturer,

11 eop 1m Boston, Mass.

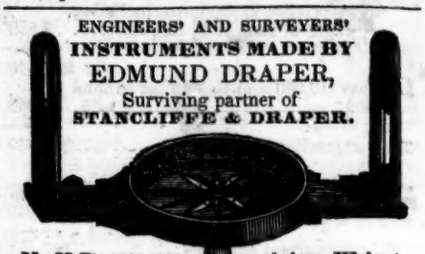
ENGINEERS' AND SURVEYERS'

INSTRUMENTS MADE BY

EDMUND DRAPER,

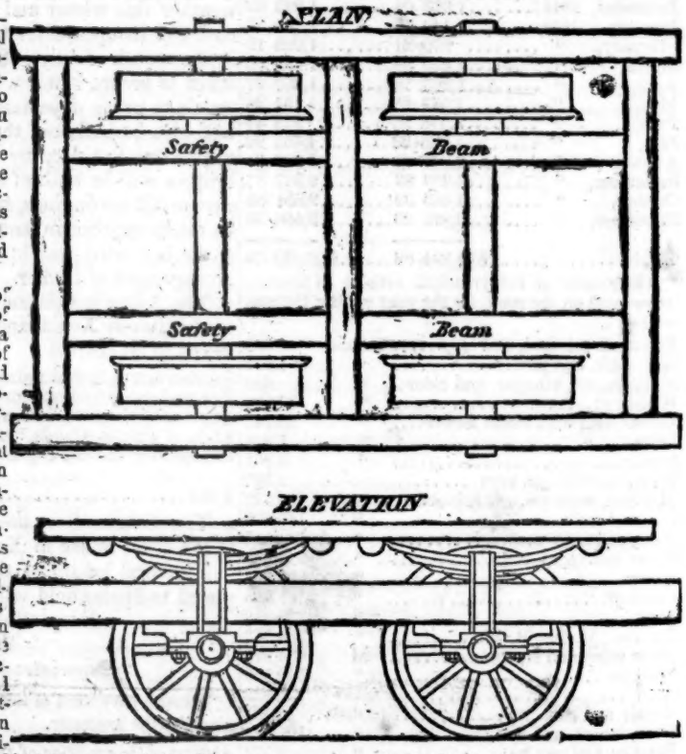
Surviving partner of

STANCLIFFE & DRAPER.



No 23 Pear street, near Third, below Walnut, Philadelphia.

KITE'S PATENT SAFETY BEAM.

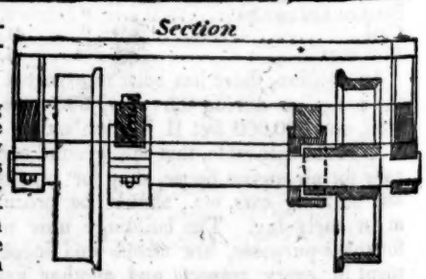


MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.

Wilmington, Del., Sept. 28, 1840.

☞ The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.



In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent, JAMES ELLIOTT, Sup. Motive Power,

GEORGE CRAIG, Superintendant, W. L. ASHMEAD, Agent.

☞ A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York. ja40

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

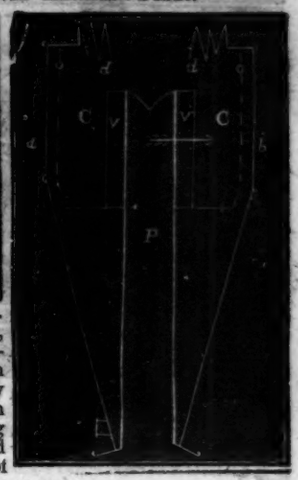
HENRY BURDEN, *Agent.*

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufcturing so as to keep pace with the daily increasing demand.

ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.



TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendant Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

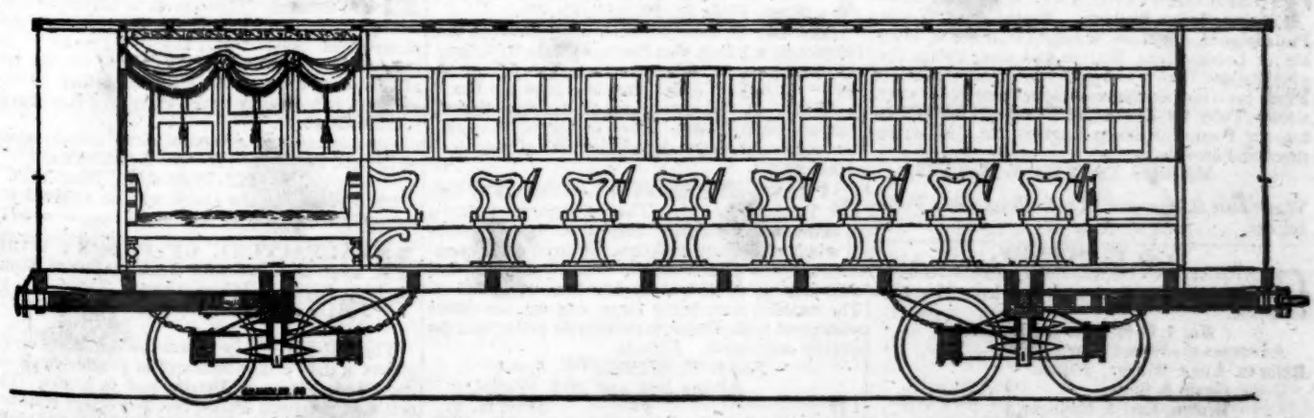
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. *Philadelphia, Pa., April* 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by CURTIS & RANDALL, Boston; and by FORCE, GREEN & CO. New York.

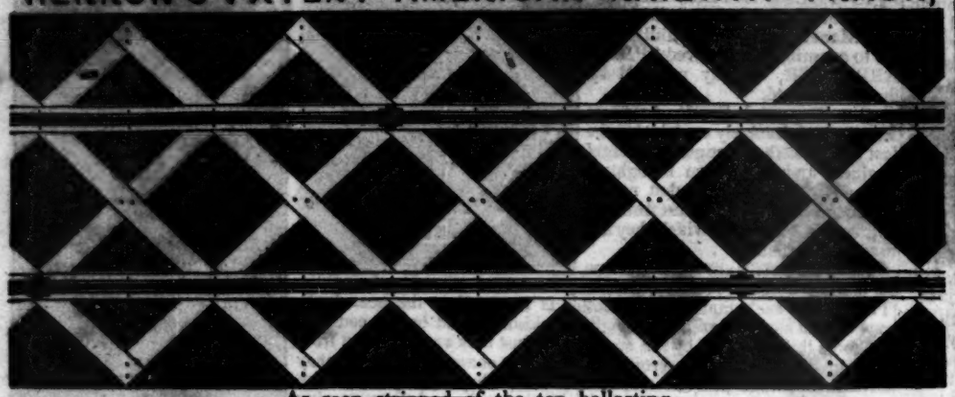
DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILway Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the *wear* and *tear* of the *engines* and *cars*, by the *even surface* and *elastic structure* of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really *permanent* and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from $2,300 to $4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to 60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in *perfect adjustment*, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportrtion, for *Two hundred dollars per mile per annum.** To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only $750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed $625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1y1

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make surveys estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

TO LOCOMOTIVE AND MARINE ENgine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 1tf

C. J. F. BINNEY,

GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufactures, etc.

No. 1 CITY WHARF, Boston.

Advances made on Consignments.

Refer to Amos Binney, *Boston.*
Grant & Stone, Brown, Earl & Erringer, Weld & Seaver, } *Philadelphia.*
Baltimore.

December 8, 1845. 1m 50

SCRIBNER'S ENGINEERS' AND MEchanics' Companion. For sale at this office. Price $1·50.

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz:
180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long.
25 " 2½ x ½ " Flange Iron Rails.
75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1tf

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1¼ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, *Agent,*
Albany Iron and Nail Works,
1 1y Troy, N. Y.

RAILROAD IRON WANTED. WANted, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 384 Philadelphia P. O.—Post paid. 8 4t

LAWRENCE'S ROSENDALE HYDRAulic Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 33 1y

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, *Civil Engineer,*
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railrord, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum	$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion	8 00
One columnn " "	3 00
One square " "	1 00
Professional notices per annum	5 00

ENGINEERS and MACHINISTS.

J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (*See Adv.*)
TROY IRON AND NAIL FACTORY, H. Burden, Agent. (*See Adv.*)
ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (*See Adv.*)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (*See Adv.*)
NORRIS, BROTHERS, Philadelphia Pa. (*See adv.*)
KITE'S Patent Safety Beam. (*See Adv.*)
FRENCH & BAIRD, Philadelphia, Pa. (*See Adv.*)
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (*See Adv.*)
ROSS WINANS, Baltimore, Md.
CYRUS ALGER & Co., South Boston Iron Company.
SETH ADAMS, Engineer, South Boston.
STILLMAN, ALLEN & Co., N. Y.
JAS. P. ALLAIRE, N. Y.
H. R. DUNHAM & Co., N. Y.
WEST POINT FOUNDRY, N. Y.
PHŒNIX FOUNDRY, N. Y.
R. HOE & Co., N. Y.
ANDREW MENEELY, West Troy.
JOHN F. STARR, Philadelphia, Pa.
MERRICK & TOWNE, do.
HINCKLEY & DRURY, Boston.
C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.
BALDWIN & WHITNEY, Philadelphia, Pa.
THOMAS & EDMUND GEORGE, Philadelphia. (*See Adv.*)